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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,031	07/30/2003	John M. Page	10030673-1	7771

7590 03/06/2007

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EXAMINER	
THOMAS, SHANE M	
ART UNIT	**PAPER NUMBER**
2186	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/630,031	PAGE ET AL.	
	Examiner	Art Unit	
	Shane M. Thomas	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-8,10-16 and 18-20* is/are rejected.

7)☒ Claim(s) *4 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is responsive to the amendment filed 12/26/06. Claims 1-16 and 18-20 are pending; claim 17 has been canceled. Applicants' arguments have been carefully considered, but they are not persuasive. Accordingly, this action has been made FINAL.

Response to Arguments/Amendments

Regarding the amendments to claims 1 and 11 and Applicant's arguments on page 10, paragraphs 2-3, the Examiner asserts that prior art reference of Page teaches "the update file [existing] in unprotected memory locations not protected by the write filter which describe the critical writes," and has cited further sections of the Page reference to teach the amended limitation. Specifically, Page teaches that an unprotected data partition 208 (figure 2) may store any number of files (e.g. update files) that are to be saved to persistent memory locations that are protected by the write filter within partitions 204,206 [4/48-51], and that the writes to the memory partition 204, while cached in RAM initially [7/20-22], are written to the unprotected partition 208 before being written to write filter-protected storage 204,206 [7/36-40]. Refer also to figure 9.

Applicant further argues in the fourth paragraph on page 10 of the Response that a "write to protected memory that is protected by a write filter, as described in Page, is distinguishable from a *critical write* to be persisted to protected memory that is claimed in Applicant's claim 1." Applicant goes on to further cited an example of a "critical write" with reference to ¶6 of Applicant's originally filed specification: "one example of a critical write is the changing of the

computer's IP address." The Examiner notes such an example and further argues that the prior art reference of Page does indeed teach critical writes to the partitions protected by the write filter since the writes of Page may also update the IP address of the computer [7/25-28].

Applicant goes on to argue in the fourth paragraph of page 4 to the first paragraph of page 11 of the response, that "typically [the critical writes] involve the creation of an entry in the write cache, as normal, but then is also followed by the creation of an update file on a non-write filtered partition." The Examiner states that such a limitation, as claimed by the Applicant in amended claims 1 and 11, is taught by Page as discussed above with reference to [4/48-51], [7/20-22], and [7/36-40].

As can be seen, Page teaches the amended/argued limitations of the amended claims.

Regarding the amended claim 14, Page teaches that during the change state updates to an operating system of the embedded system are applied and persisted - [7/25-28].

Claim Objections

Claims 12,13,15,16,18, and 19 objected to because of the following informalities:

The use of the strike-through to remove the letter 'A' of line 1 is noted; however, such a de-marker cannot be visibly seen with respect to the alternation indicated by the Applicant. The Examiner suggests denoting the deleted word using the double bracket notation as shown: "[[A]]". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,3,5,6,8,10-16, and 18-20, are rejected under 35 U.S.C. 102(e) as being anticipated by Page (U.S. Patent No. 6,523,103).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As per claim 1, Page teaches:

(1) staring a write filter that intercepts writes to the protected memory locations (on the primary partition) and stored the writes in a cache (RAM) [7/20-22];

(2) starting a state machine [7/2-6] with at least a change state (either one of PREPBOOT or COMPLETEBOOT states) and a normal state (RUNBOOT) [4/52-64];

(3) upon starting the state machine, entering the change state when an indication (current boot state indicated in AUTORUN.INI - [7/3-4]) is present that data needs to be persisted to the protected memory locations [5/40-42], otherwise entering the normal state [5/13-30];

(4) in the normal state identifying requests for critical writes to the protected memory locations [5/24-26],[7/29-32] and creating a least one update file (e.g. the collection of the update data in the cache RAM 200 that is also stored in persistent memory 208 - [7/36-40]) in unprotected memory locations not protected by the write filter (data partition 208 is not protected by the write filters as shown in figures 9-13) which describe critical writes [7/25-29], wherein the critical writes are not persisted to the protected memory 204 during the normal state (persisted during the COMPLETEBOOT state - [5/56 - 6/11]; and

(5) in the change state (COMPLETEBOOT state), applying the critical writes described in the at least one update file [5/65-67] and rebooting the system in a manner that persists the critical writes to the protected memory locations [8/32-38].

As per claims 3 and 12, Page teaches running applications in the normal state [4/26-28] and not running applications in the change state [5/31-33].

As per claim 5, Page teaches when in the normal state as an update file is created, creating an indication (i.e. storing files in the data partition 208) that data needs to be persisted to the protected memory locations (primary partition 204)) - [4/48-51], [5/24-30], and [7/22-40].

As per claim 6, Page teaches wherein the step of creating an indication comprises writing the file name of the update file (e.g. a tag or other identification - [7/29-32]) to a data file (portion of the data partition 208 that comprises the data to be updated) - [7/25-29]. Further, it is necessarily inherent that the data file of the data partition 208 stores files names of the updates to

be written as all data files have an associated file name associated with them so as to be location by the operating system when a write or read is to be made to the data.

As per claim 8, Page teaches running an update executable (e.g. the state machine is an executable as it is comprised on the AUTORUN.EXE file [4/2-6]) in the change state, as the state machine needs to be run in order to transition/advance between/from the normal state (RUNBOOT) and the change state (PREBOOT or COMPLETEBOOT).

As per claim 10, Page teaches:

(1) a processing unit responsive of an operating system for executing applications [7/16-18] to perform functions (processing unit is inherent as it is well known in the art that to execute application, a processing unit is required to read and execute the instructions of which the application is comprised);

(2) a main memory location (portion of primary partition 204 that maintained the OS) storing the operating system (primary OS - figure 2) of the embedded system, where the OS provides a write filter (wrfilter.sys) that protects the OS from writes - figure 2 and [4/10-22];

(3) a secondary memory location (considered by the Examiner to be a combination of the data partition 208 and/or the secondary partition 206) for storing software (i.e. a backup operating system - [4/33-35] - or applications - [4/26-28]) and data (e.g. NT Embedded components - [4/30-33] - and/or persisted data as shown as being stored in data partition 208 in figure 9). It could have been seen that non-critical software in relation to the operating system could have been stored in data partition 208;

(4) a control program (state machine - [4/52-64]) that executes automatically upon booting of the system and causing the system to operate in a normal state (RUNBOOT) and a change state (PREBOOT or COMPLETEBOOT);

(5) running applications in the normal state and when a critical write to the OS occurs to the OS, the critical write is stored in an update file generated in the second memory location (data partition 208 - [7/36-40] - or secondary partition 206 - [7/43-62]) and not persisted to the OS until the system enters the change state - [7/8-36]; and

(6) during operation in the change state, no applications are run [4/26-28] and the update file is used to update and persist the OS - [7/60 - 8/3].

As per claim 11, Page teaches a system (figure 2) comprising a normal state (RUNBOOT and PREBOOT) in which applications are executed [7/16-18] and a write filter [4/16-23] that intercepts writes to a protected memory location 204 and redirects them into a non-protected memory location 200 [7/20-22] wherein the writes are not applied during the normal state [7/49-62], as writes to the primary partition are only persisted to the primary partition 204 during the COMPLETEBOOT state as described below. Critical writes to the protected memory location 204 are identified and described in at least one update file (e.g. the collection of the update data in the cache RAM 200 that is also stored in persistent memory 208 - [7/36-40]) in non-protected memory (data partition 208 is not protected by the write filters as shown in figures 9-13).

A change state (COMPLETEBOOT) entered across a boot from the normal state [8/9-26] in which respective writes to the filter during the normal state (i.e. PREBOOT and RUNBOOT) are re-applied to the write filter (now disabled) and subsequently persisted to the respective protected memory locations [8/4-31].

As per claim 13, critical writes are applied to the write filter and persisted in the change state - [7/25-36].

As per claim 14, Page teaches applying updates to the OS during the change state - [8/24-31].

As per claim 15, critical writes included writes to a system registry - [7/25-28] and [8/26-31].

As per claim 16, writes intercepted by the filter in the normal state are copied to at least one update file (combination of all files in the data partition 208 - [7/29-35]) and in the change state the update file is used as the source for re-applying the write to the [disabled] write filter - [7/60-62] and [7/43-48].

As per claim 18, the change state is entered subsequent to a boot when indicators (presence of data in the data partition 208 of updates are present) - [7/36-56].

As per claim 19, once all respective writes applied to the write filter during the last normal state have been persisted, the state machines enters the normal state [8/12-38].

As per claim 20, the protected memory location 204 stores an OS of the embedded system (figure 2 show the primary OS is stored in primary partition 204).

Claims 1,3,5,6,8,10-16, and 18-20, are rejected under 35 U.S.C. 102(a) as being anticipated by Page (U.S. Patent No. 6,523,103).

The same rejections discussed *supra* under §102(e) are applied hereto.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Page (U.S. Patent No. 6,523,103), as applied to claims 1,3,5,6,8,10-16, and 18-20 above, in view of Ryan (U.S. Patent Application Publication No. 2003/0084194).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

As per claim 2, Page does not specifically teach emptying the cache 200 of the system of figure 2 upon bootup. Ryan teaches zero-initializing a RAM upon boot-up (¶4), thereby emptying the invalid contents of the RAM during system initialization. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the write filter system of Page with the emptying by zeroing out method of Ryan in order to have flushed all invalid data from the RAM before system use of the RAM, thereby eliminating the chance that the system will read invalid data from the RAM once being used by the system of Page.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Page (U.S. Patent No. 6,523,103), as applied to claims 1,3,5,6,8,10-16, and 18-20 above, in view of Xian et al. (U.S. Patent No. 6,327,584).

As per claim 7, Page does not specifically teach naming the update file using a timestamp. Xian teaches creating an update file naming the update file using a time stamp [8/36-50]. It would have been obvious to one of ordinary skill in the art to have combined the write filter system of Page with the file-name-timestamp teaching of Xian with the filtered write because Page has expressly taught the use of writes to update critical portions of the OS [7/25-28] and Xian's timestamp naming provides files having the same filename prefix that can be distinguished (between current and outdated files) in to the most recently updated version via the timestamp extension portion of the filename (Xian Col. 8 Lines 28-35). Such a modification to Page would have been beneficial in distinguishing the most recent update to the OS if subsequent updates for the same data portion of the OS were written to the data partition update file 208.

Using the timestamp teaching of Xian, modified Page could have applied the most recent update to the OS portion thereby saving time and confusion caused from multiple updates to the same OS portion.

Allowable Subject Matter

Claims 4 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As per claim 4, the prior art of record does not specifically teach or suggest, either alone or in combination the specific steps taken once the writing of the update was considered successful or unsuccessful.

As per claim 9, the prior art of record does not specifically teach or suggest, either alone or in combination placing the state machine in a sleep mode during the execution of the update executable.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M. Kim can be reached at (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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